



Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of)
)
Modernizing the E-rate) WC Docket No. 13-184
Program for Schools and Libraries)

Initial Comments of the Nebraska Department of Education
Regarding
FCC Public Notice DA 17-921 Seeking Comment on Category 2 Budgets

As the Chief Information Officer for the Nebraska Department of Education (NDE) I appreciate the opportunity to submit these comments and information as a collective of input and experiences from local districts around the state, as well as data gathered from state resources and the USAC School and Libraries Data and FRN retrieval tools.

Nebraska is a rural state. There are 244 public school districts in the state of Nebraska serving over 310,000 K-12 students. About one third of the districts in the state (81) are considered sparse, and forty of those are classified very sparse. 84% of K-12 districts serve 1,000 or fewer students; 67% serve fewer than 500 students. Nebraska is also continuing work to support the needs of a changing population including 44.17% of students qualifying for free/reduced meals, a 6.2% English Language Learners population, 14.5% High Ability, and 14.7% Special education statewide.

Section 1: Impact of E-rate funding for internal connections.

In 2014, the Commission established a five-year test period to allow the Commission to determine whether the applicant budgets were effective in ensuring greater access to E-rate funding for internal connections.

Nebraska is a state where districts rarely qualified for Priority 2 funding prior to the 2014 Modernization Order. The following chart indicates the discounts received by Nebraska schools four years prior to the FCC's Category 2 budgets for individual schools as well as subsequent discounts funded post Order.

Year	FRNs submitted	FRNs funded	Lowest Discount funded	Post Discount Cmtd Funding
2011	13	4	90	\$ 680,992.25
2012	26	4	90	\$ 419,200.66
2013	15	0	0	\$ -
2014	3	0	0	\$ -
2015	281	265	20	\$ 6,587,126.04
2016	193	176	40	\$ 3,715,644.41
2017	113	93*	40	\$ 1,864,024.69

* 7 FRNs are pending action

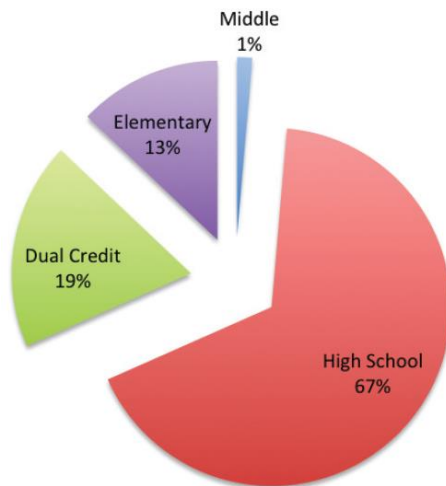
Nebraska's average discount is between 68-70%

The implementation of individual school budgets for Category 2 created a predictable and equitable funding model and was a welcome change from past Priority 2/Category 2 funding. This is allowing schools the opportunity to upgrade much needed infrastructure and internal connections essential to meet the needs of today's digital learning environment. As need increases and technology advances, infrastructure will always be in a state of upgrade. The challenges schools face in remaining viable in a digital world will increase as well.

Data collected in 2014 and 2015 of the use of technology in Nebraska's public schools showed an increase of 55% in the use of mobile devices statewide.

- The ratio of students per instructional device improved from 1.61 to 1.47 in one year.
- Instructional devices increased statewide by 22,000: 15,000 mobile devices, 7,000 desktop computing.
- 75% of districts have at least one grade level that is 1:1 (one device per student).
- 13% of districts allow students to Bring Your Own Device (BYOD)
- Three out of four public school districts use social media as a communications tool.

In addition to increases in technology tools, a robust infrastructure needs to be ubiquitous and dependable to meet the needs of students taking online distance learning courses and teacher and learning resources in a blended learning environment. Blended learning and courses shared across the state between districts on the statewide education network, including dual credit and advanced coursework when not offered within a local school, have become a mainstay especially in rural sections of the state that often face challenges hiring content-specific teachers. The following graph shows distance learning course exchanges by grade type:

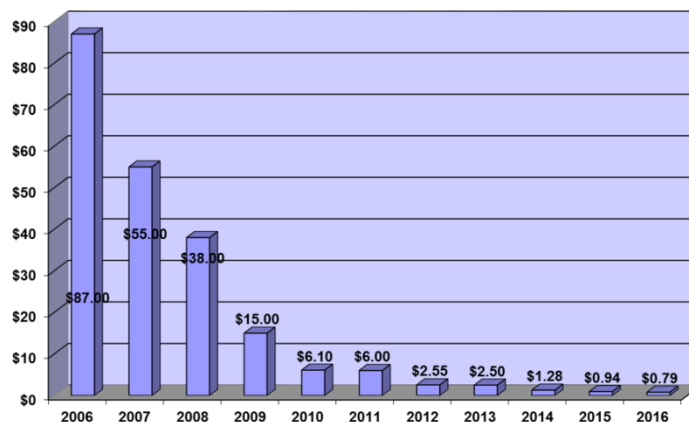


Section 2: How applicants used their budgets and was it enough?

Nebraska public schools are under local control, meaning that all decisions for how districts spend their revenue is determined locally by the district and its board. Nebraska schools are served by a robust statewide education backbone called Network Nebraska. This backbone has reduced Category 1 transport and Internets costs, and is able to transport high-speed bandwidth from the most rural sections of the state to the most urban. Utilizing this transport for Internet services and shared digital resources is important in the growing needs of teaching and learning in schools. Nebraska is committed to a college and career ready education for all of it students.



Network Nebraska Internet Access Cost
(Average \$\$ per Mbps/month)



Below are short descriptions from superintendents, principals, technology directors, and regional Educational Service Units demonstrating the importance of Category 2 funding. The information is qualitative in nature and if asked, each would likely “measure” the value as “immeasurable” because without the assistance of Category 2 budgets these districts would not have had the capacity to upgrade their facilities to the extent each describes. Districts most likely only purchased or planned for that which was available in their Category 2 budgets, and that which they could pay of the non-discounted portion. A comparison of the budget total and the discount by district would provide an estimate of total expense incurred by a school. It may not, however, indicate the total need as funding requests can only demonstrate allowable, budgeted costs.

The twelve comments listed provide insight and common threads that are pervasive across the state. The first eleven are primarily rural districts or regions, the last comment is an urban district. One common theme is the ability to upgrade to an infrastructure that supports higher and growing bandwidth needs important to the demands of education in the 21st Century and beyond. Another common thread is the ability to use Category 2 funds that help with budget issues, making the undoable and delayed, doable and timely. Staying competitive in a digital world is another thread, especially relevant in extremely rural schools where access to resources are possible primarily due to the bandwidth and access afforded by Category 2 funds.

•**Natalie Brauer, E-rate Support Specialist, Regional Educational Service Unit 5 -**

Category 2 funding has been very beneficial to the small rural schools in Southeast Nebraska that would not have been eligible for E-rate funding prior to the E-rate Modernization. School districts have been able to upgrade their infrastructure to support the technology demands within their classrooms. Without a solid network backbone, districts would struggle with state assessment testing, interactive video conferencing lessons and 1:1 initiatives, just to name a few examples. Most of the districts I work with have both the elementary school and high school within one building; several of these would have been able to utilize more of their Category 2 funding if the budgets were based on district budgets and not individual schools.

•**Larel Reimann, Technology Director, Hay Springs Public Schools**

Before Category 2 was added to the E-rate program, many of our network switches were in the 10-12 year old age range and only capable of 100Mbps connectivity. Our wireless “access points” consisted of \$50 off-the-shelf consumer-grade home wireless routers. Our firewall/content filter was at “end-of-life” from the manufacturer. In other words, our networking infrastructure was in dire need of an upgrade.

The E-rate program introduced Category 2 at the perfect time for our school district. We quickly took advantage of the program to get our network switches upgraded to 1Gbps throughout the school. We were able to purchase corporate-grade wireless access points for most rooms and we were able to purchase a new firewall/content filter that was supported by the manufacturer.

At this point in the E-rate Category 2 cycle, we still have funds available and the reason for

that is very simple. The products mentioned above were purchased with 3 year service/support contracts. We plan to use our remaining Category 2 budget to renew those service/support contracts when they expire next calendar year 2018. At that time, we will most likely also finish purchasing wireless access points for the remainder of the rooms in the school as we will be seeing an increase in class sizes.

Perhaps instead of evaluating the Category 2 program at this point in the cycle, it would be more beneficial to wait until the end of the 5 year cycle. We believe many other districts have done the same thing as ours and do plan on using more of their budget to renew service contracts and continue to add to their infrastructure before the cycle is up.

•**Daryl Schrunk, Superintendent, Dorchester Public Schools**

Category 2 E-rate funds have been very important to my district. Getting broadband into the hands of students is crucial for small schools to provide students with technology that will enable them to compete in an ever-changing technological world. It starts in the K-12 being able to enhance our curriculum with a variety of technology to meet the varied needs of all our learners.

We are getting closer to increasing bandwidth in our school. However, technology changes so rapidly that we want to be up-to-date. Again budgets are limited in a small school. E-rate really helps us to keep our equipment running as well as accessible and current.

Upgrading the infrastructure (switches, routers, APs, etc) is HUGE. Again, we are getting close to accomplishing this goal. Access Points seem to change every 5 years so we need to have funds to support switching them out. Solid infrastructure must be in place to meet the demands to the technology changes that are yet to come. It need to be adaptable to the future technology world.

•**Jeffrey Koehler, Superintendent, Johnson-Brock Public Schools**

Johnson-Brock Public School benefited tremendously from Category 2 funds over the last three years and will continue to benefit from the improvements that have been made. In the summer of 2015, with the help of Category 2 funds, we were able to install a fiber-optic backbone throughout our school. This included updated switches, routers, and wireless access points in each classroom. Our plan was to create a strong system so over time we could add devices without a drop in bandwidth.

Over the past two years we have added over 200 more devices to our system without issue. We have added 1:1 to our 4th-6th grade and 1:1 with our 7th-12th grade because of our ability to connect using the wireless access points and fast fiber-optics. We have also been able to do live feeds for all of our home contest like volleyball, basketball and music programs using our strong system that was established with Category 2 funds.

Without funds flowing in to help with these ever-changing updates, educational facilities would lag behind with what the business world uses on a day-to-day basis. Technology is an area that cannot be put to the side and not make improvements to your facility in order to keep up with the high evolution of technology.

•**Tim Lucas, Technology Coordinator, Lewiston Consolidated Schools**

Category 2 E-rate funding allowed us to upgrade the infrastructure of our network from switches that were limited to 100mg internal to the network. We were also able to replace all of wireless access points with new managed access points with higher bandwidth, increased security using layer 3 and layer 4.

The upgrading of the infrastructure is a great benefit to the students, faculty and staff. We are now able to take full advantage of the 1 Gig fiber-optic connection that we are purchasing through Unite Private Networks. This provides the students with the highest bandwidth

available in the area. We are able to make use of this connection for providing our students with the opportunity to take college credit classes at reduced cost while attending high school. We also make use of the many resources provided by video and tele-connection for distance learning like our Spanish I class.

I would like to see the continued funding of this type for the capability to maintain our infrastructure and to provide equipment for replacement if we have any infrastructure failure. If a switch goes down now we would be down until we received a replacement.

•**Lana Sides, Superintendent, Banner County School**

Banner County School has a one-to-one computer program for all 7th-12th grade students, and the availability of computers on a mobile cart for all K-6 students. Since the inception of this program, our students and teachers have learned to utilize the computers as valuable supplemental tools to learning and the educational process. In order to maintain this program, it is of utmost importance to have quality Wi-Fi/Internet connection within the entire school. The use of E-rate funding for upgrades of equipment has been and continues to be important to the success of student education. E-rate funding is needed to upgrade aging servers and Wi-Fi hotspots as they wear out.

Banner County School is a very sparse school located 25 miles from the closest town. Our students are receiving the same quality education as those in cities largely in part because of our technology infrastructure. E-rate funding is important to the continued quality education of our students.

•**Patrick Ningen, Principal, Creek Valley High School**

The Category-2 component of E-rate has allowed us to grow and maintain an ever-growing one-to-one initiative here at Creek Valley Schools. Our mission statement is *to prepare today's students for tomorrow's world*. This would not be possible without funding from E-rate. Our wireless infrastructure has been updated and is currently working very well. We look to expand our one-to-one program into our junior high in future years, and this funding would allow that to continue as our goal. With the addition of a large number of devices to our district, our bandwidth needs have increased. Our Category-2 funding has allowed us to meet those needs and deliver the type of education we feel is important for our students.

•**Marshall Lewis, Superintendent, Kimball Public Schools**

I'll be brief, which is not like me. E-rate funding has allowed us to upgrade our wireless structure and provide security for our students. Without the funding of E-rate, it is my belief that we would not have been able to address the technology needs (not wants) of students. We are still behind where our technology should be, and it is a focus for us that relies upon the support of E-rate funding.

•**Brett Gies, Superintendent, Sioux County Schools**

My school district is located in a very remote rural part of northwest Nebraska. Our district has been the recipient of the E-rate funds which have played a vital role in providing upgrades to our Internet system. We have used the funds on an annual basis to ensure our students have access to a quality education which we cannot always provide due to connectivity issues from living in such a remote area.

The E-rate program is a program succeeding in its mission and it is working in our schools. Any changes to the E-rate program should be focused on expanding a successful program.

E-rate played a critical role in the rapid and significant expansion of connectivity in schools, and the 2014 modernization was a much needed update to ensure more schools and libraries are connected to broadband. E-rate's investment in Category 2 Wi-Fi and internal connections

funding is extremely valuable and could not be replaced by school, district, or state funds.

As superintendent of schools, I would like to share how we effectively use our E-rate funds.

- a) The funds were used to build a sound infrastructure to allow our students to take foreign language classes via the Internet since we are not able to employ a foreign language instructor on a full time basis.
- b) Our Ag teacher is able to send classes over the Internet to other schools which helps build our program and builds a foundation for future ag business education at the secondary level.
- c) We were able to provide wireless connection throughout each of our buildings.
- d) The use of these funds have allowed us to provide upgrades to our system which would not have occurred without E-rate funding due to a lack of local funds.
- e) We anticipate that the connectivity provided by these Category 2 funds will continue to improve our school and district educational experience by replacing the infrastructure over time with newer and more efficient upgrades.
- f) These funds allow our students to compete with larger districts as we prepare them for the future college and career experiences.

In closing, I reiterate my district's continued, strong support for and reliance upon the E-rate program for being able to access and afford the high-speed connectivity that is so central to our students' learning. Thank you for considering these comments.

•**Kurt Zadina, Technology Director, Alliance Public Schools**

Wi-Fi access points purchased the first year of the new E-rate program allowed Alliance Public Schools to upgrade the access points (APs) in the high school and install Wi-Fi in two elementary schools and a middle school. We were able to do this because E-rate helped with the purchase and installation of the equipment. We plan to update some old 100mg switches in the district that are starting to fail.

David Davis, Director of Technology, Scottsbluff Public Schools

As members of the District Leadership Team of Scottsbluff (NE) Public Schools and responsible for providing technology to our students it is imperative that we continue to receive E-rate funding each year. E-rate funding provides the means for our school district to provide up-to-date technology to our students that would not be possible without it. Each year as technology becomes more prevalent in our school systems and the increasing mandates for online testing this funding provides school districts, including ours, with technology and access to the Internet that this testing requires. If we did not receive this funding it would be almost impossible to administer online testing in a timely manner and meet the requirements of the state.

As the E-rate program has evolved over the years and with the changes that were made in the last few years that expanded Category 2 funding, it has given our school district as well as most others in our state, the ability to bring our technology up to 21st Century standards. The funding provided from Category 2 has allowed our district to upgrade and implement a wireless network system in all school buildings in our district. It has also provided us with network switches, firewalls, and other devices used to provide access to the Internet for all classrooms in our district. These items would be out of reach for many districts without this funding and has helped speed up our districts hardware refresh cycles.

If any changes are made to the E-rate system our recommendation would be to reinstate or include funding for telephone services. Since the reduction and elimination of this funding has happened it has put most school districts in a situation where they now have to choose whether or not to provide technology to their students or to provide phone service to their buildings and classrooms. As safety concerns arise with the absence of phone services districts are having to

make some difficult decisions. As a solution, it would be recommended that Category 2 funding be reduced to a level that would allow an increase in funding in Category 1 again to fund phone services. We believe this would suit the needs of most districts in aiding them in all areas of technology without having to sacrifice safety concerns or make decisions to use their funds for hardware or phone services.

•**Jennifer Ludes, Director of Technology Systems, Ralston Public Schools** (urban district)

Were it not for E-rate funding, we would have been forced to use switches that were 10+ years old and had max speeds of 100mg and failing regularly. We were on a replacement schedule, but given our budget restraints, it was not going to get the critical switches replaced at anywhere near an acceptable rate. It would have literally taken another 5 to 10 years to cycle through and replace and by then, the "new" switches would have aged out.

Thankfully, E-rate allowed us to catch up so we now have a manageable replacement schedule for our switches to keep up with the ever-increasing demand for bandwidth and more devices.

In addition to the network closet switches, we were able to replace and expand our managed wireless system, which was also aging out. This allowed us to handle the increased bandwidth and device counts, and also allow us to better manage the network resources we have and provide a stable and secure network environment for our students and staff.

Thanks to E-rate funding, we were able to replace the aging switches then update and add to our wireless capabilities the year after (building on the improved infrastructure).

Section 3: Why some applicants may not have used their budgets

Districts that have been successful utilizing Category 2 discounts have been pleased with the results and are hopeful that the funds remain available in the future. Districts that have not yet utilized Category 2 budgets also hope that the opportunity remains for future use. Reasons for delay in utilizing these funds varies, including: adequate infrastructure at this time, planning is in progress and not ready to order, fear of ordering not knowing how reliable the process is, and lack of knowledge on what to order. The Nebraska Education Technology Association (NETA) Technology Coordinator's were asked at a recent meeting: *what are some of the barriers to using Category 2 funds in your district?* Here are several of the replies from these coordinators:

- The challenge is that most of us want to do the installation and upgrades over the summer. We put our 471 in early, but did not get funded until far into a new school year. So, we cancel that work and try again the following funding year.
- We have talked with the vendors and put in the RFP that this order is subject to approved funding form USAC. If approval is delayed, we can't get the work done until the following summer which is out of the funding year.
- We can't afford to pay for the work until we know that funding has been approved.
- Funding is being denied and we don't fully understand why. It is difficult to submit Category 2 funding requests when this happens.

- Sometimes our projects take several years to implement, but we can't be sure of approved funding so we don't know how to proceed. If funding is approved one year, but not following years, we are cautious about committing to a long-term project.
- Vendors are hesitant to work with us when we can't confirm a project until we know about E-rate funding.

Section 4: Detailed feedback on how to improve the process

Nebraska schools appreciate the opportunity to benefit from the E-rate program. The program provides opportunities for schools to integrate and utilize eligible services to meet the growing educational needs of teaching and learning in a digital world. As technology and needs change, the following recommendations to improve the process of utilizing Category 2 funds are provided from users, constituents, and participants in Nebraska:

- Continue the per student funding model. This allows all schools in the nation the opportunity to increase capacity.
- Implement a district-wide budget model, rather than individual school budgets, to eliminate the frustration of new construction, closures, or mergers and allows districts to plan for utilizing all funds in service of all teaching and learning.
- Likewise, the FCC could consider a budget established at the beginning of a five-year period based on the District's total membership and eliminate the part-time student calculation. The five-budget remains lump sum without changes due to membership or inflation costs for the five-year period. Rarely, if needed, budgets would be adjusted to account for mergers and closures by moving the funds with the students to the appropriate district billed entity.
- Consider approving funding requests that span multiple years so that projects can be implemented without loss of fund utilization. Districts would provide a multi-year budget proposal and submit purchase orders with a specific vendor and equipment or services identified, that have been duly selected in the 470 process, to draw against encumbered funds as invoices occur. Currently, Forms 470 can apply to several years – can a funding request to a vendor do the same?
- When a district has done its due diligence in its Form 470 selection, and ordered new infrastructure with vendor neutrality, consider allowing specific equipment requested in subsequent Category 2 requests from an approved pricing list that matches the district's standards. Example: If a business has installed a Panasonic phone system, it would not order Cisco phones to add to the system. They just won't work. The same is true for

wireless access points and other controlled switches and network equipment in schools.

- Create a level playing field. Utilize national or state level approved equipment and pricing lists to avoid price hikes, regional pricing differences, and ineligible products.
- Stay true to the intent of the law. Category 2 eligible services should only serve those elements of infrastructure that take the digital world to the learner. Applications that reside in a telecom closet or server room are not the responsibility of this fund. Anything operating above level 4 of the OSI model should be closely reviewed for eligibility.
<https://support.microsoft.com/en-us/help/103884/the-osi-model-s-seven-layers-defined-and-functions-explained>
- The Eligible Services List (ESL) for Category 2 should be well defined in the services allowed. For example, there is often much consternation from schools losing funds because they did not specifically understand the basic vs. advanced firewall service. If firewall service is to be included, the elements that make it basic vs. advanced need to be identified so that applicants and vendors understand the differences and can make fundable decisions. The same is true for other ESL elements where the wording has been challenging to interpret. Solid definitions would also assist PIA reviews and increase funding commitments.

Thank you for the opportunity to provide comments on Category 2 funding and possible improvements to the process that represent the information and input from several direct beneficiaries and users of the resources in Nebraska. I, along with my talented staff, would be happy to provide additional information the FCC requires to assist in its decision-making process.

Respectfully Submitted by:

/s/ Dean Folkers

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